

New *Timema* from Nevada and Arizona

(Phasmodea : Timemidae)

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Tinkham in 1942 published a synopsis of the species of *Timema* known up to that time. Helfer in his manual on orthopteroid insects illustrated the male abdominal appendages of all species described up to 1963.

Tinkham, in his discussion of the genus, predicted the finding of species of the genus in the Hualpai Mountains and in the mountains of southern Nevada. This forecast was fulfilled by the capture of a male specimen of *Timema* in the Hualpai Mountains by Dorothy and Joseph Knull. The collection of a series of specimens in Nevada was made by R. C. Bechtel and R. W. Lauderdale.

***Timema dorotheae* Strohecker, new species**

(Fig. 1)

Pale brown with a dark median stripe on head and pronotum, and a narrow dark line on the lateral areas of each abdominal tergite. The insect is similar in all respects to *Timema ritense* Hebard from southeastern Arizona, the only salient difference being in the form of the left cercus of the males. The great similarity suggests racial status of the Hualpai form but the limited vagility of these insects and their occurrence in mountains separated by semidesert areas argues against present genetic continuity of the populations of *Timema* in southeastern and northwestern Arizona.

The single specimen at hand is somewhat teneral, with abdominal appendages distorted. Drawings were made after the last few abdominal segments had been removed, treated in 10% KOH and preserved in glycerol. Length 14.5 mm.

Holotype male.—HUALPAI MOUNTAINS, MOHAVE COUNTY, ARIZONA, 4 July 1937, D. J. and J. N. Knull (author's collection).

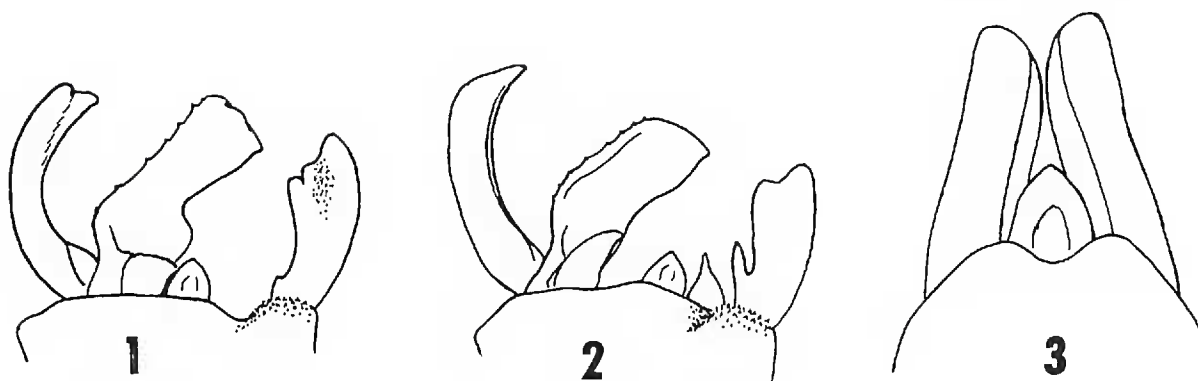
The species is named for Dr. Dorothy Knull.

***Timema nevadense* Strohecker, new species**

(Figs. 2, 3)

MALE.—Large and robust for genus. Head wide, the areas behind the eyes inflated. Entire upper surface shining, smooth, without the tubercles seen in some species. Right cercus similar to that of *T. podura* but with internal apical angle more acute and produced. Left cercus subcylindric with broad internal flange and very large basal tooth. Intradaxtral process somewhat foot-shaped, its outer margin with seven or eight sharp denticles. Length (exclusive of cerci): 16.2 mm.

FEMALE.—Head proportionally smaller than in male. Subgenital plate triangularly produced with narrowly rounded tip. Apex of tenth tergite rather deeply emarginate. Length (exclusive of cerci): 24 mm.



EXPLANATION OF FIGURES

Fig. 1. *Timema dorotheae* Strohecker, new species, abdominal appendages of male, dorsal view. Fig. 2. *Timema nevadense* Strohecker, new species, abdominal appendages of male, dorsal view. Fig. 3. *Timema nevadense* Strohecker new species, apex of abdomen of female, dorsal view.

The dried male holotype is now buffy brown with sides of head and body dark brown, and with a median dark stripe on head and pronotum. The other specimens were collected in alcohol, subsequently cleared in xylene, and dried. Bechtel reports that in life four of the males were green, of the color of juniper foliage, and one was brown. The females were gray and white.

Holotype male.—MT. SPRINGS SUMMIT, CLARK COUNTY, NEVADA, 5,400 feet, 26 May 1961, on *Pinus monophylla*, R. C. Bechtel (California Academy of Sciences). Allotype female, Mt. Springs Summit, Clark County, Nevada, 5,400 feet, 22 May 1963, on juniper at night, R. W. Lauderdale (California Academy of Sciences). Paratypes, one pair *in coitu* with data as for holotype, and three males and two females taken on juniper, 22 May 1963 by Bechtel and Lauderdale (Nevada Department of Agriculture and author's collection).

Bechtel notes (*in litt.*) that the six specimens collected in 1963 "were obtained at night—we spent about 3 hours in getting them. I tried during a cloudy day on the 23rd but had no success.

"Some of the larger vegetation in the area in addition to *Pinus monophylla* and three species of *Juniperus* are *Arctostaphylos pungens*, *Cercis occidentalis*, *Cowania stansburiana*, *Fallugia paradoxa*, *Fraxinus* (2 spp.), *Quercus* (2 spp.), *Prunus fasciculata*, *Rhus trilobata anisophylla*, and *Yucca*—the names are taken mostly from Clokey: Flora of the Charleston Mountains."

LITERATURE CITED

- HELPER, J. 1963. How to know the grasshoppers, cockroaches and their allies. W. C. Brown, Dubuque.
- TINKHAM, E. R. 1942. A new California species of *Timema* with zoogeographical notes. Bull. Southern California Acad. Sci., 41: 72-79.